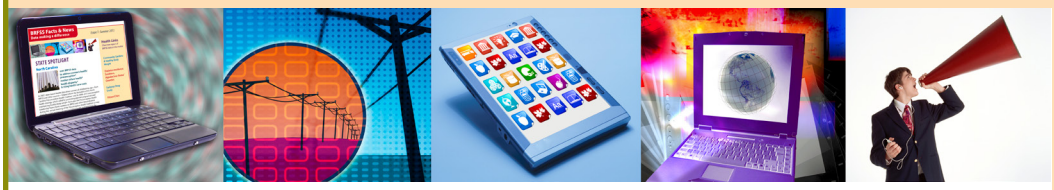
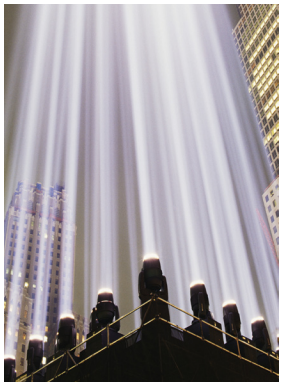
BRFSS Facts & News
Data making a difference

Issue 2: Spring 2014



STATE SPOTLIGHT
Massachusetts



This state uses BRFSS for:

- √ Examining prevalence of health risk factors, behaviors, and outcomes,
- √ Characterizing disparities in health among population subgroups,
- √ Evaluating access to care and use of preventive and treatment services,
- √ Identifying emerging public health issues in the state, and
- √ Informing intervention and prevention efforts.

The Occupational Health Surveillance Program in the Massachusetts Department of Public Health (MDPH), with support from CDC's National Institute for Occupational Safety and Health (CDC-NIOSH), tracks occupational illnesses, injuries and hazards among Massachusetts workers. The MDPH Tobacco Cessation and Prevention Program routinely conducts surveillance of secondhand smoke exposure and smoking in the Massachusetts population but had not looked specifically at prevalence among workers. Both programs were interested in this information for the following reasons:

Hazardous exposure: Secondhand smoke is hazardous to health; there is no safe level of exposure (USDHHS 2006*). It causes lung cancer and heart disease and is linked to respiratory illness.

Policy evaluation: In 2004, reports MDPH, Massachusetts became the third state in the country to pass a comprehensive, statewide Smoke-Free Workplace Law. This is the first analysis of population-based state-level data that looks at exposure to secondhand smoke on-the-job among Massachusetts workers over time since the law went into effect, and by occupation group.

Public health surveillance: Some national data have recently been published on secondhand smoke exposure in the workplace by occupation group. State-level surveillance data, however, allows for evaluation of state-specific smoke-free workplace legislation and for targeting state and local interventions to address gaps. This is one of the first reports providing results on newly available (as of 2010) occupation information from the Massachusetts BRFSS.

* US Department of Health and Human Services, The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, 2006.

Recent Resources & Media Mentions

National Center for Chronic Disease Prevention and Health Promotion
Division of Population Health

CS246682-A

Preliminary Results

- The prevalence of secondhand smoke exposure at work among non-smokers declined from 8% in 2003 (the year before the ban was passed) to 5.4% in 2010. At the same time, smoking prevalence among workers declined from 18.5% in 2004 to 12.7% in 2010.
- The results were presented at the 2013 conference of the American Public Health Association and published in an MDPH Occupational Lung Disease Bulletin (Fall 2013). These findings are consistent with those from other studies suggesting smoke-free workplace policies can reduce or eliminate secondhand smoke exposure among non-smokers as well as increase smoking cessation among workers[1,2].

But the findings also revealed that exposure varies by occupation group, as well as by age, sex, and race/ethnicity, which suggests there are gaps needing to be addressed.

- In 2010, prevalence of exposure to secondhand smoke at work among non-smokers ranged from 3% to as high as 37% depending on occupation group. There was a significantly higher-than-average prevalence of secondhand smoke exposure among three occupational groups:
  - » Installation repair and maintenance (including auto body workers, HVAC mechanics, and cable TV installers): 37.4%
  - » Construction and extraction (including construction laborers, stonemasons, roofers, and electricians): 22.6%
  - » Transportation and material moving (including taxi drivers and waste collectors): 19.8%.
- The Massachusetts 2004 law may not be as effective among these three occupation groups–either because it does not cover or is not enforced in settings where they work. For example, outdoor non-enclosed workplaces and private residences are not covered, and it may be difficult to enforce the ban in work vehicles.
- Prevalence of exposure to secondhand smoke at work also differed by age, sex and race/ethnicity. Younger (aged 18–29), male and non-White workers had higher prevalence of exposure.
- Other research has found that in 2010, frequent exposure to secondhand smoke at work among non-smokers was significantly lower in the US Northeast (a region including Massachusetts) compared with the South, where as of 2010, no states in the region had comprehensive smoke-free workplace laws.[3]

[1] US Department of Health and Human Services, The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, 2006.

[2] Bauer JE, Hyland A, Li Q, Steger C, Cummings KM. A longitudinal assessment of the impact of smoke-free worksite policies on tobacco use. *Am J Public Health*. 2005 Jun;95(6):1024-9.

[3] Calvert GM, et al. The prevalence of selected potentially hazardous workplace exposures in the US: Findings from the 2010 National Health Interview Survey. *Am J Ind Med.* 2013 Jun;56(6):635-46.

According to the Massachusetts Department of Health:

Massachusetts is one of a handful of states to collect industry and occupation information in the BRFSS: Having this newly available information in the MA BRFSS allowed the researchers to identify specific job groups in which workers are still at risk of exposure to secondhand smoke and where smoking prevalence is high. The information will allow better targeting of intervention efforts as well as future research. This analysis underscores the potential value of collecting occupational information in the BRFSS and other health data sets to inform intervention and prevention efforts. While this analysis focused on occupation, industry may also be of interest, and information on industry is often essential to code occupation accurately.

How BRFSS Was Used

For this analysis, researchers looked at secondhand smoke exposure at work among all non-smoking currently employed adults over time (2003–2010) and by occupation group in 2010. For the primary analysis, they used two state-added questions (below), along with the employment question from the BRFSS core. They also looked at prevalence of smoking among workers (over time, and by occupation group in 2010), using a combination of two questions from the BRFSS core. For this project, the Occupational Health Surveillance Program consulted with MDPH Tobacco Cessation and Prevention Program and Health Survey Program staff on analysis of 2003–2010 data, as well as interpretation and dissemination of findings.

Secondhand smoke exposure at work: *Thinking about the past 7 days, about how many hours per week were you exposed to other people's tobacco smoke when you were at work?*

- Each year since 2002, the Tobacco Cessation and Prevention Program has coordinated with the Health Survey Program to have this question included in the survey as a state-added question. The question is asked of respondents who are currently employed for wages or are self-employed. A respondent was considered exposed if he/she answered more than one hour.

Occupation: *What kind of work do you do, that is, what is your occupation? For example, registered nurse, janitor, cashier, auto mechanic.*

- Since 2010, occupation (and industry) information has been collected annually in the Massachusetts BRFSS survey using open-ended question format. The narrative text has been coded by CDC-NIOSH according to the US Census Bureau Industry and Occupation Classification System using computer assisted methods. The Occupational Health Surveillance Program has worked closely with the MDPH Health Survey Program in this effort, which has been crucial to successful collection and use of this information. Collaborations included question development and placement, training of interviewers to collect and record the free-text responses (training manual, slides, and session), monitoring live interviews and providing specific feedback to the interviewers, facilitating coding of the narrative responses by CDC-NIOSH, analyzing the data, and presenting findings. The Health Survey Program, recognizing the importance of this information, made the decision to add the industry and occupation questions to the Massachusetts BRFSS cellular telephone survey in 2012 and 2013. Together, the state's programs have informed the national effort to have these questions included in the BRFSS, and have provided information and guidance to other states regarding adding these questions to the BRFSS survey and analysis of the data.

State Spotlight — Massachusetts

Resources Produced from the Research

- Abstract, Oral Presentation, 2013 American Public Health Association's Annual Meeting in Boston: "On-the-job exposure to environmental tobacco smoke among Massachusetts workers." The APHA Communications Office identified the abstract topic as being potentially newsworthy and contacted MDPH.
- Press Release: With input from MDPH, APHA prepared a press release of the findings.
- Newspaper Article: *The Boston Globe* requested an interview the week before the APHA meeting; the Occupational Health Surveillance Program and the Tobacco Cessation and Prevention Program participated jointly. The article was published the day of the APHA presentation (11/4/13). The story and APHA press release were distributed widely by news outlets across the country.
- Data Bulletin: A two-page MDPH *Occupational Lung Disease Bulletin* with coverage on the study was prepared and released to coincide with the APHA conference and helped the *Globe* prepare and present the information in the newspaper article.
- NIOSH Science Blog (published on the Great American Smokeout – 11/21/13) and NIOSH eNews (12/6/13).

New Procedures and Related Initiatives

- The study's findings can help local inspectors better target their surveillance and education outreach to workplaces. (In Massachusetts, cities and towns are responsible for enforcing the law–although the state can also enforce it–by periodic inspections or responding to complaints from workers.)
- Currently in Massachusetts, some venues are not covered by the statewide Smoke-Free Workplace Law. For example, private multi-unit housing property is not covered. A worker doing home repairs, therefore, may be exposed to smoke on the premises. Expansion of smoke-free housing policies would help alleviate this issue, which is being promoted by MDPH as a policy across Massachusetts in public and private housing. In addition, municipal smoke-free policies that cover certain areas not covered by the statewide law – outdoor seating at restaurants, loading docks of businesses – are promoted by MDPH to reduce occupational exposure to secondhand smoke.
- Massachusetts routinely publishes a set of occupational health indicators recommended by the Council of State and Territorial Epidemiologists and also includes several state-specific indicators. Exposure to secondhand smoke at work will be added to the list of state-specific indicators and tracked annually.

Electronic Resources

Occupational Lung Disease Bulletin:
http://www.mass.gov/eohhs/gov/departments/dph/programs/health-stats/ohsp/asthma-work/educational-materials/sensor-occupational-lung-disease-bulletins.html
MDPH Occupational Health Surveillance Program: http://www.mass.gov/dph/ohsp
MDPH Tobacco Cessation and Prevention Program: http://www.mass.gov/dph/mtcp
MDPH Health Survey Program (Massachusetts BRFSS): http://www.mass.gov/dph/hsp

***Have a BRFSS-related story, program, achievement, or case study for the State Spotlight section of this newsletter? Please let us know! Email the details to Dave Flegel, BRFSS technical writer, at dflegel@cdc.gov.

BRFSS Population Health Surveillance Branch Publications

Cardozo BL, Gotway Crawford CA, Eriksson C, et al. Psychological distress, depression, anxiety, and burnout among international humanitarian aid workers: a longitudinal study. *PLoS One*. 2012:7(9):e44948. Accessed March 5, 2014.

Chen Z, Gotway Crawford CA, The role of geographic scale in testing the income inequality hypothesis as an explanation of health disparities. *Soc Sci Med*. 2012;75(6):1022-1031. doi: 10.1016/j.socscimed.2012.04.032. Epub 2012 May 24.

Chen Z., Roy K, Gotway Crawford CA. Evaluation of variance estimators for the concentration and health achievement indices: a Monte Carlo simulation. *J Health Econ*. 2012;21:1375-1381.

Chen ZA, Roy K, Gotway Crawford CA. Obesity prevention: the impact of local health departments. *Hlth Serv Res*. 2013;48(2) (Pt 1):603-627. doi: 10.1111/j.1475-6773.2012.01447.x. Epub 2012 Jul 20.

Chowdhury, PP. Balluz LS. Zhao G. Town M. Health behaviors and obesity among Hispanics with depression, United States 2006. *Ethnicity & Disease*, Volume 24, Winter 2014.

Gotway Crawford CA, Okoro CA, Akcin HM, Dhingra S. An experimental study using opt-in Internet panel surveys for behavioral health surveillance. *Online J Public Health Inform*. 2013;5(1):e24.

Eriksson C, Cardozo BL, Foy D, et al. Predeployment mental health and trauma exposure of expatriate humanitarian aid workers: Risk and Resilience Factors. *Traumatology*. 2012:19(1)41-8. Accessed March 5, 2014.

Harris CD, Watson KB, Carlson SA, Fulton JE, Dorn JM, Elam-Evans L. Adult participation in aerobic and muscle-strengthening physical activities—United States, 2011. *MMWR*. 2013;62(17);326-330.

Li C, Balluz L, Ford ES, Okoro CA, Zhao G, Pierannunzi C. A comparison of prevalence estimates for selected health indicators and chronic diseases or conditions from the Behavioral Risk Factor Surveillance System, the National Health Interview Survey and the National Health and Nutrition Examination Survey 2007-08. *Prev Med*. 2012;54(6):381-387. doi: 10.1016/j.ypmed.2012.04.003. Epub 2012 Apr 12.

Li C, Ford ES, Zhao G, Tsai J, Balluz L, Giles W. Trends of insulin use among US adults with type 2 diabetes: the Behavioral Risk Factor Surveillance System (1995-2007). *J Diabetes Complications*. 2012;26(1):17-22. doi: 10.1016/j.jdiacomp.2011.11.005. Epub 2012 Jan 5.

Li C, Zhao G, Okoro CA, Wen XJ, Ford ES, Balluz LS. Prevalence of diagnosed cancer according to duration of diagnosed diabetes and current insulin use among US adults with diagnosed diabetes: findings from the 2009 Behavioral Risk Factor Surveillance System. *Diabetes Care*. 2013;36(6):1569-76. doi 10.2337/dc12-1432.

Okoro CA, Stoodt G, Rohrer JE, Strine TW, Li C, Balluz LS. Physical activity patterns among US adults with and without serious psychological distress. *Public Health Rep*. 2014;129(1):30-38.

Pierannunzi C, Hu SS, Balluz L. A systematic review of publications assessing reliability and validity of the Behavioral Risk Factor Surveillance System (BRFSS), 2004—2011. *BMC Med Res Methodol*. 2013;13:49 doi:10.1186/1471-2288-13-49.

Pierannunzi C, Town M, Garvin W, Shaw FE, Balluz L. Methodologic changes in the Behavioral Risk Factor Surveillance System in 2011 and potential effects on prevalence estimates. *MMWR*. 2012; 61(22):410-413.

Qayad M, Pierannunzi C, Chowdhury P, Hu S, Town G, Balluz L. Landline and cell phone response measures in Behavioral Risk Factor Surveillance System. *Survey Practice*. 2013;6(3).

Wen XJ, Balluz L, Town M. Prevalence of HIV risk behaviors between binge drinkers and non-binge drinkers aged 18- to 64-years in US, 2008. *J Community Health*. 2012;37(1):72-79. Accessed March 5, 2014.

Xu F, Town M, Balluz LS, et al. Surveillance for certain health behaviors among states and selected local areas—United States, 2010. *MMWR Surveill Summ*. 2013;62 (suppl):1-247.

Young LJ, Gotway Crawford CA, Lopiano KK. A closer look at errors in variables methods for use in regression models with spatially misaligned data. *Communication in Statistics Simulation and Computation*. 2012;41:1250-1269.

Zhang X, Akcin H, Lim HJ. A SAS macro for direct adjusted survival curves based on Aalen's Additive Model. *Comp Methods Programs Biomed*. 2012;108(1):310-317. http://www.sciencedirect.com/science/article/pii/S0169260712000168. Accessed March 5, 2014.

Zhao G, Ford ES, Li C, Croft JB. Serum 25-hydroxyvitamin D levels and all-cause and cardiovascular disease mortality among US adults with hypertension: the NHANES linked mortality study. *J Hypertens*. 2012; 30(2):284-289. doi: 10.1097/HJH.0b013e32834e1f0a.

Zhao G, Ford ES, Tsai J, et al. Trends in health-related behavioral risk factors among pregnant women in the United States: 2001-2009. *J Womens Health* (Larchmt). 2012;21(3):255-263. doi: 10.1089/jwh.2011.2931. Epub 2011 Nov 2.

Zhao G, Ford ES, Tsai J, Li C, Croft JB. Factors associated with vitamin D deficiency and inadequacy among women of childbearing age in the United States. ISRN *Obstet Gynecol*. 2012;. doi: 10.5402/2012/691486. Epub 2012 Mar 4.

Zhao G, Li C, Ford ES, et al. Leisure-time aerobic physical activity, muscle-strengthening activity and mortality risks among US adults: the NHANES linked mortality study. *Br J Sports Med*. 2013:48(3):244-9. doi:10.1136/bjsports-2013-092731.

Zhao G, Li C, Li J, Balluz LS. Physical activity, psychological distress, and receipt of mental healthcare services among cancer survivors. *J Cancer Surviv*. 2013;7(1):131-9. doi: 10.1007/s11764-012-0254-6. Epub 2012 Nov 25.

Zhao G, Li C, Ford ES, et al. Associations between overall and abdominal obesity and suicidal ideation among US adult women. *J Obes*. 2012; 2012: 263142. doi: 10.1155/2012/263142. Epub 2012 Jun 6.

Zhao G, Li C, Okoro CA, et al. Trends in modifiable lifestyle-related risk factors following diagnosis in breast cancer survivors. *J Cancer Surviv*. 2013:7(4):563-9. Epub 2013 June. doi: 10.1007/s11764-013-0295-5.

Coming Soon

- Surveillance of Certain Health Behaviors and Conditions Among States and Selected Local Areas—United States 2011. (*MMWR*)
- Survey Insights: Conducting The Behavioral Risk Factor Surveillance System (BRFSS)

Recent Webinars

Healthy Life Expectancy for the US Population by Sex, Race/Ethnicity and Geographic Region: 2007-2009
Dr. Man-Huei Chang

Impact of depression on quality adjusted life expectancy
Dr. Haomiao Jia
Recording URL: https://www.livemeeting.com/cc/cdc/view
Recording ID: CSGN82-16
(Starts at 4:00 mark)

Drowsy Driving—The Problem, Current Research, and Possible Solutions
Dr. Steve Higgins

Optional Insufficient Sleep Module –Drowsy Driving
Dr. Anne Wheaton
Recording URL: https://www.livemeeting.com/cc/cdc/view
Recording ID: CSGN82-1

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